February 5, 1996

MEMORANDUM

TO: Brian R. Monson, Chief
Operating Permits Bureau
Permits and Enforcement

FROM: Harbi Elshafei, Air Quality Engineer
Operating Permits Bureau
Jose Fabile, Air Quality Engineer
Construction Permits Bureau

THROUGH: Susan J. Richards, Air Quality Permits Manager
Operating Permits Bureau

SUBJECT: Technical Analysis for Tier II Operating Permit #001-00086
Hewlett-Packard Company (HP), Boise, Idaho

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits.

FACILITY DESCRIPTION

Hewlett-Packard Company (HP) is located at 11311 Chinden Boulevard in Boise, Idaho. The HP facility consists of twelve (12) natural gas-fired boilers, nine (9) emergency generators, a chemical processing facility, and five (5) diesel storage tanks.

PROJECT DESCRIPTION

This project is for an Operating Permit (OP) for the following existing point and fugitives emission sources.

Point Sources:

(1) BL1 - Boiler #1 - Cleaver Brooks (Model: CB200-150). Gas-fired with a maximum rated capacity of 6.28 Million (MM)Btu/hr. The boiler is located in Building 1 at the facility. This source was constructed in November 1976.

Stack Design Specifications

Height:	43.7 feet (minimum)
Exit Diameter:	1.83 feet
Exit Gas Flow Rate:	1360 acfm (at rated capacity)
Exit Temperature:	300°F

(2) BL1 - Boiler #2 - Cleaver Brooks (Model:CB200-100). Gas-fired with a maximum rated capacity of 3.35 MMBtu/hr. The boiler is located in Building 1 at the facility. This source was constructed in November 1976.

Stack Design Specifications

Height:	43.7 feet (minimum)
Exit Diameter:	1.83 feet
Exit Gas Flow Rate:	906 acfm (at rated capacity)
Exit Temperature:	300°F

(3) BL2 - Boiler #1 - Kewanee (Model:L3W-150-GO). Gas-fired with a maximum rated capacity of 6.28 MMBtu/hr. The boiler is located in Building 2 at the facility. This source was constructed in April 1978.

Stack Design Specifications

Height:	43.7 feet (minimum)
Exit Diameter:	1.75 feet
Exit Gas Flow Rate:	1360 acfm (at rated capacity)
Exit Temperature:	300°F

(4) BL2 - Boiler #2 - Kewanee (Model: L3W-100-GO). Gas-fired with a maximum rated capacity of 4.19 MMBtu/hr. The boiler is located in Building 2 at the facility. The source was constructed in April 1978.

Stack Design Specifications

Height:	43.67 feet (minimum)
Exit Diameter:	1.75 feet
Exit Gas Flow Rate:	906 acfm (at rated capacity)
Exit Temperature:	300°F

(5) BL2 - Boiler #3 - Sellers (Model: #98716-1). Gas-fired with maximum rated capacity of 1.26 MMBtu/hr. This boiler is located in Building 2 at the facility. The source was constructed in August 1986.

Stack Design Specifications

Height:	52.7 feet (minimum)
Exit Diameter:	1.75 feet
Exit Gas Flow Rate:	272 acfm (at rated capacity)
Exit Temperature:	300°F

(6) BL2 - Boiler #4 - Sellers (Model: #98716-2). Gas-fired with maximum capacity of 1.26 MMBtu/hr. The source is located in Building 2 at the facility. This source was constructed in August 1986.

Stack Design Specifications

Height:	52.7 feet (minimum)
Exit Diameter:	1.75 feet
Exit Gas Flow Rate:	272 acfm (at rated capacity)
Exit Temperature:	300°F

(7) BL5 - Boiler #1 - Cleaver Brooks (Model: CB200-150). Gas-fired with maximum rated capacity of 6.28 MMBtu/hr. The boiler is located in Building 5 at the facility. The source was constructed in February 1980.

Stack Design Specifications

Height:	42.4 feet (minimum)
Exit Diameter:	3 feet
Exit Gas Flow Rate:	1360 acfm (at rated capacity)
Exit Temperature:	300°F

(8) BL5 - Boiler #2 - Cleaver Brooks (Model: CB200-300). Gas-fired with maximum rated capacity of 12.55 MMBtu/hr. The boiler is located in Building 5 at the facility. The source was constructed in February 1980.

Stack Design Specifications

Height:	42.4 feet (minimum)
Exit Diameter:	3 feet
Exit Gas Flow Rate:	2720 acfm (at rated capacity)
Exit Temperature:	300°F

(9) BL5 - Boiler #3 - Cleaver Brooks (Model: CB200-40). Gas-fired with rated capacity of 1.67 MMBtu/hr. The boiler is located in Building 5 at the facility. The source was constructed in February 1980.

Stack Design Specifications

Height:	42.4 feet (minimum)
Exit Diameter:	3 feet
Exit Gas Flow Rate:	362 acfm (at rated capacity)
Exit Temperature:	300°F

(10) BL6 - Boiler #1 - Sellers (Model: SY-150 YGNIS). Gas-fired with rated capacity of 6.28 MMBtu/hr. The boiler is located in Building 6 at the facility. The source was constructed in October 1981.

Stack Design Specifications

Height:	34.9 feet (minimum)
Exit Diameter:	3 feet
Exit Gas Flow Rate:	1360 acfm (at rated capacity)
Exit Temperature:	300°F

(11) BL6 - Boiler #2 - Sellers (Model: SY-350-YGNIS). Gas-fired with rated capacity of 1.46 MMBtu/hr. The boiler is located in Building 6 at the facility. The source was constructed in October 1981.

Stack Design Specifications

Height:	34.9 feet (minimum)
Exit Diameter:	3 feet
Exit Gas flow Rate:	3173 acfm (at rated capacity)
Exit Temperature:	300°F

(12) BL6 - Boiler #3 - Kewanee (Model: L3W-60-60). Gas-fired with rated capacity of 2.51 MMBtu/hr. The boiler is located in Building 6 at the facility. The source was constructed in August 1987.

Stack Design Specifications

Height:	34.9 feet (minimum)
Exit Diameter:	3 feet
Exit Gas Flow Rate	453 acfm (at rated capacity)
Exit Temperature:	300°F

(13) Diesel Emergency Generator A - Kohler (Model: 125R071). The generator's rated capacity is 167 horse power (hp). The generator is located east of Building 1. This source was constructed on 1976.

Stack Design Specifications

Height:	44.9 feet (minimum)
Exit Diameter:	0.33 feet
Exit Gas Flow Rate:	390 acfm
Exit Temperature:	900°F

(14) Diesel Emergency Generator B - Onan (Model: 300DFML27619N). The generator's rated capacity is 466 hp. The generator is located west of Building 2. This source was constructed in 1978.

Stack Design Specifications

Height:	44.9 feet (minimum)
Exit Diameter:	0.67 feet
Exit Gas Flow Rate:	1086 acfm
Exit Temperature:	900°F

(15) Diesel Emergency Generator C - Kohler/John Deere (Model: 230R0271). The generator's rated capacity is 308 hp. The generator is located east of Building 5. This source was constructed in 1980.

Stack Design Specifications

Height:	44.9 feet (minimum)
Exit Diameter:	0.5 feet
Exit Gas Flow Rate:	720 acfm
Exit Temperature:	900°F

(16) Diesel Emergency Generator D - Cummings (Model: NTA-855-G). The generator's rated capacity is 425 hp. The generator is located south of Building 6. This source was constructed in 1981.

Stack Design Specifications

Height:	13.3 feet (minimum)
Exit Diameter:	0.5 feet
Exit Gas Flow Rate:	993 acfm
Exit Temperature:	900°F

(17) Diesel Emergency Generator E - Kohler/John Deere (Model: 125R)271). The generator's rated capacity is 148 hp. The generator is located west of Building 7. The source was constructed in 1983.

Stack Design Specifications

Height:	31 feet (minimum)
Exit Diameter:	0.5 feet
Exit Gas Flow Rate:	346 acfm
Exit Temperature:	900°F

(18) Diesel Emergency Generator F - Cummins (Model: KTA38-G3). The generator's rated capacity is 1,340 hp. The generator is permitted and located on Bethel Court in Boise. The source was issued a Permit to Construct (PTC) on November 17, 1994. On June 9, 1995, HP amended the PTC for this generator.

Stack Design Specifications

Height:	26 feet (minimum)
Exit Diameter:	12 inches
Exit Gas Flow Rate:	7645 acfm
Exit Temperature:	865°F

(19) Diesel Emergency Generator G - Caterpillar (Model: SR40). The generator's rated capacity is 697 hp. The generator is located in Bethel Court in Boise. The source was constructed on 1988.

Stack Design Specifications

Height:	20.8 feet (minimum)
Exit Diameter:	8 inches
Exit Gas Flow Rate:	1500 acfm
Exit Temperature:	900°F

(20) Diesel Emergency Generator H - Onan (Model: 6CTA8.3-G). The generator's rated capacity is 277 hp. The generator is located at 1500 Shoreline Drive. The source was constructed in march 1991.

Stack Design Specifications

Height:	10 feet (minimum)
Exit Diameter:	4 inches
Exit Gas Flow Rate:	560 acfm
Exit Temperature:	900°F

(21) Diesel Emergency Generator I - Onan (Model: 12.5JCL). The generator's rated capacity is 20 hp. The generator is located RFI at the main site. The source was constructed in January 1993.

Stack Design Specifications

Height:	10 feet (minimum)
Exit Diameter:	1.5 inches
Exit Gas Flow Rate:	75 acfm
Exit Temperature:	900°F

(22) Storage Tanks - There are five (5) storage tanks at the facility. The tanks contain No. 2 fuel oil. The storage tanks are associated with the above emergency generators.

Fugitive Sources:

(1) Chemical Processing Facility - The processes include printed circuit assembly which uses surface mount technology and assembly of disc drives. These processes use organic chemicals (i.e., alcohol, isopropanol, surfactants, fluxes, and epoxies). The manufacturing process includes soldering, surface-clean finished product, and disk drive assembly process. Surfactants are used for parts cleaning.

Water treatment chemicals used at the facility are Dearborn 547, Dearcide 723 , Dearcide 737, and polyElpH 955. These chemicals are used for cooling water treatment and as a microbiocide and slimicide treatment. Hydrochloric acid, sulfuric acid, and sodium hydroxide are also used at the facility for the water treatment system.

(2) Paved and unpaved roads emissions.

A more detailed process description is found in the operating permit application materials.

SUMMARY OF EVENTS

On June 12, 1995, the Division of Environmental Quality (DEQ) received an application for a Tier II OP, prepared by Brown & Caldwell Company. On July 11, 1995, the application was determined incomplete. On August 17, 1995, DEQ staff met with HP and Brown & Caldwell staff and discussed the July 11, 1995, incompleteness letter. On August 23, 1995, DEQ received a response to the July 11, 1995, incompleteness letter. After reviewing all applicable federal and state rules and regulations, the application was determined complete on September 22, 1995.

A public comment period was held from November 22, 1995, through December 21, 1995.

DISCUSSION

1. Emission Estimates

Emission estimates were provided by HP and can be reviewed in the June 12, 1995, Tier II application. DEQ also estimated the PM, PM-10, SO_2, NO_x, CO, and the VOC emissions by using emission factors from AP-42. Section 1.4 (natural gas combustion) of AP-42 was used to estimate emissions from the boilers. AP-42, Sections 3.3 (gasoline and all diesel industrial engines) and 3.4 (large stationary diesel and stationary dual fuel engines) were used to estimate emissions from the emergency generators. Emission calculation spreadsheets are shown in Table-1 and Table-2, Appendix A of this memo.

Oxides of nitrogen (NO_x) is the pollutant emitted in the greatest amount from the fuel burning equipment (i.e., boilers and generators). The maximum emission for NO_x from all the twelve (12) natural gas-fired boilers as estimated by DEQ and based on 8,760 hours of operation per year is 33.9 tons per year (T/yr). The maximum NO_x emission from all of the emergency generators as estimated by DEQ and based on 8,760 hours of operation per year is 521 T/yr. To limit the potential to emit (PTE) of NO_x to be below 100 T/yr, HP requested a limitation on hours of operations of 500 hours per year for each emergency generator. NO_x emissions resulting from the limitations on hours of operations (i.e., 500 hours for each generator) was estimated to be 27.7 T/yr. The total actual NO_x emissions resulting from the combustion sources from the entire facility were estimated to be 61.6 T/yr. Short-term emissions limits (in lb/hr) for the criteria air pollutants emitted from each of the emergency generator were

established and that can be seen in Appendix A of this memo. Long-term emissions limits (in tons/yr) for the criteria pollutants emitted for all of the emergency generators were also established as seen in Appendix A.

Compliance determination for the hours of operations for the emergency generators can be verified by maintaining a record of the annual hours of operations for each generator on-site on a rolling annual basis.

Particulate matter (PM) emissions from all emission units at the facility are assumed to be PM-10.

In the proposed Tier II Operating Permit, DEQ did not establish emission limits for any criteria air pollutant that are emitted from the natural gas-fired boilers that are existing at the facility. The estimated emissions from these boilers when operating at full capacity and based on 8,760 hours of operations per year are below 100 T/yr.

However, a grain loading emission limit for particulate matter (PM) for each boiler and the emergency generator was established, as per IDAPA 16.01.01.675 (Rules for the Control of Air Pollution in Idaho).

For the criteria air pollutant emission calculations for the boilers, the reader is referred to Appendix A of this memo.

Volatile organic compound (VOC) emissions from the chemical processing facility were estimated by HP to be 42.84 T/yr. It was assumed that all VOCs in the chemicals that were purchased by the facility were emitted to the atmosphere, except for the VOCs that were discharged into the facility's wastewater and the chemical recovered in reclaim operations. Based on that assumption, the VOC emissions from the manufacturing processing facility were estimated to be 7.99 lb/hr and 35.00 T/yr. Compliance determination for the VOC emissions can be verified by recordkeeping the quantity (in tonnage) of chemicals that are purchased by the facility on rolling annual basis.

Emissions of the chemical: 1,1, 1,2 tetrafluoroethane (HCFC-123) is excluded from the VOC emission limits in the OP because it has a negligible photochemical reactivity.

Hydrochloric acid (HCl) is used at the facility in a quantity equivalent to 25.67 (T/yr), based on 100% capacity. That chemical is listed as hazardous air pollutant (HAP). According to the submitted MSDS, the HCl is 100% volatile. HP assumed in the application that only 2% of HCl is emitted to the atmosphere. HP reported that HCl is used at the water treatment process in a closed container and is not left open to the atmosphere for an extended period of time. Considering the complete solubility of HCl in water, the HP's 2% emissions assumption of HCl to the atmosphere is considered reasonable. Due to the toxic nature of the HCl vapors and its volatility, an operating provision is added to the final OP to ensure that the exposure to HCl emissions is kept at the lowest possible levels. HCl emission limits of 0.12 lb/hr and 0.51 T/yr is included in the final OP, as per applicant submittal. Compliance determination for the HCl emissions can be determined through the purchasing records of that chemical by the facility on a rolling average.

The facility has five (5) storage tanks, which are associated with emergency generators. The VOC emissions from these storage tanks are assumed to be negligible because the capacities of the tanks are small. Capacities of these tanks are between 200 and 800 gallons.

Fugitive dust emissions from paved or unpaved roads at the facility were not estimated. It was assumed that fugitive dust emissions will be very minimum because all the roads at the facility are paved. Fugitive dust emissions shall be controlled in accordance with IDAPA 16.01.01.650 of the Rules.

2. Modeling

HP performed the ISC2 dispersion model for two of the criteria air pollutants (i.e., CO and NO_x) for emission points of the combustion sources at the facility. The modeling results are included in Appendix B of this memo.

DEQ also conducted the ISC2 dispersion model on eighteen (18) emission points (boilers and generators) at the main site facility were input into EPA approved ISC2 dispersion model. Model was performed only on PM-10 and NO_x. Fugitive emissions from the facility were not modeled.

The predicted PM-10 and NO_x impacts were determined to be below the National Ambient Air Quality Standards (NAAQS). The modeling results are shown in Appendix B.

A technical memorandum by Mary Walsh, DEQ Meteorologist, regarding the modeling of PM-10 and NO_x emissions from the facility is included in Appendix B.

3. Area Classification

Hewlett-Packard is located in Boise. Boise is designated a non-attainment for PM-10 and CO. This area is located in AQCR 63. For other criteria air pollutants (i.e., SO_2, NO_x, and O_3), the area is classified as attainment or unclassified.

4. Facility Classification

The facility is not a designated facility as defined in IDAPA 16.01.01.25. The facility is classified as an A2 source because the actual emissions of any pollutant (i.e., NO_x) is less than 100 T/yr.

5. Regulatory Review

This operating permit is subject to the following permitting requirements:

a.	IDAPA 16.01.01.401	Tier II Operating Permit.
b.	IDAPA 16.01.01.403	Permit Requirements for Tier II Sources.
c.	IDAPA 16.01.01.404.01.c	Opportunity for Public Comment.
d.	IDAPA 16.01.01.404.04	Authority to Revise Operating Permits.
e.	IDAPA 16.01.01.406	Obligation to Comply.
f.	IDAPA 16.01.01.470	Permit Application Fees for Tier II Permits.
g.	IDAPA 16.01.01.625	Visible Emission Limitation.
h.	IDAPA 16.01.01.650	General Rules for the Control of Fugitive Dust.
i.	IDAPA 16.01.01.675	Fuel Burning Equipment -- Particulate Matter.

FEES

Fees apply to this facility in accordance with IDAPA 16.01.01.470. The facility is subject to permit application fees for Tier II permits of five hundred dollars ($500.00). IDAPA 16.01.01.470 became effective on March 7, 1995.

RECOMMENDATIONS

Based on the review of the Operating Permit application and on applicable state and federal regulations concerning the permitting of air pollution sources, the Bureau staff recommends that Hewlett-Packard Company, Boise, Idaho, be issued a Tier II Operating Permit for the sources that exist at the facility. Staff also recommends that the facility be notified of the Tier II permit fee requirement in writing. This fee will be applicable upon issuance of the permit.

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cc: J. Palmer, SWIRO
COF

Source File

APPENDIX A

TABLE I

HEWLETT PACKARD EMISSION INVENTORY

FUEL BURNING EQUIPMENTS - BOILERS

LOCATION	BLDG 1	BLDG 1	BLDG 2	BLDG 2	BLDG 5	BLDG 5	BLDG 5	BLDG 6	BLDG 6	BLDG 6	BLDG 2	BLDG 2	
A. BOILERS	BOILER 1	BOILER 2	BOILER 1	BOILER 2	BOILER 1	BOILER 2	BOILER 3	BOILER 1	BOILER 2	BOILER 3	BOILER 3	BOILER 4	TOTAL
YEAR INSTALLED	1976	1976	1976	1976	1980	1980	1980	1981	1981	1987	1986	1986	
CAPACITY (MMBtu/hr)	6.28E+00	3.35E+00	6.28E+00	4.19E+00	6.28E+00	1.26E+01	1.65E+00	6.28E+00	1.46E+01	2.51E+00	1.26E+00	1.26E+00	6.65E+01
PRIMARY FUEL	NAT. GAS	NAT. GAS	NAT. GAS	NAT. GAS	NAT. GAS	NAT. GAS	NAT. GAS	NAT. GAS	NAT. GAS	NAT. GAS	NAT. GAS	NAT. GAS	
HEATING VALUE (BTU/SCF)	1.00E+03	1.00E+03	1.00E+03	1.00E+03	1.00E+03	1.00E+03	1.00E+03	1.00E+03	1.00E+03	1.00E+03	1.00E+03	1.00E+03	
MAX FUEL RATE (SCFH/HR)	6.28E+03	3.35E+03	6.28E+03	4.19E+03	6.28E+03	1.26E+04	1.65E+03	6.28E+03	1.46E+04	2.51E+03	1.26E+03	1.26E+03	6.65E+04
HOURS OPERATION/YR	8.76E+03	8.76E+03	8.76E+03	8.76E+03	8.76E+03	8.76E+03	8.76E+03	8.76E+03	8.76E+03	8.76E+03	8.76E+03	8.76E+03	
MILLION SCF/YR	5.50E+01	2.93E+01	5.50E+01	3.67E+01	5.50E+01	1.10E+02	1.44E+01	5.50E+01	1.28E+02	2.20E+01	1.10E+01	1.10E+01	5.83E+02
EMISSIONS FROM NATURAL GAS COMBUSTION													
PART. MATTER (PM)													
E.F. (LB/C.F.)	1.20E-05	1.20E-05	1.20E-05	1.20E-05	1.20E-05	1.37E-05	1.20E-05	1.20E-05	1.37E-05	1.20E-05	1.20E-05	1.20E-05	
EM. (LB/HR)	7.53E-02	4.02E-02	7.53E-02	5.02E-02	7.53E-02	1.72E-01	1.98E-02	7.53E-02	2.01E-01	3.01E-02	1.51E-02	1.51E-02	8.44E-01
EM.(T/yr)	3.30E-01	1.76E-01	3.30E-01	2.20E-01	3.30E-01	7.53E-01	8.66E-02	3.30E-01	8.79E-01	1.32E-01	6.60E-02	6.60E-02	3.70E+00
SULFUR DIOXIDE													
E.F.(LB/C.F.)	6.00E-07	6.00E-07	6.00E-07	6.00E-07	6.00E-07	6.00E-07	6.00E-07	6.00E-07	6.00E-07	6.00E-07	6.00E-07	6.00E-07	
EM.(LB/HR)	3.77E-03	2.01E-03	3.77E-03	2.51E-03	3.77E-03	7.53E-03	9.88E-04	3.77E-03	8.79E-03	1.51E-03	7.54E-04	7.54E-04	3.99E-02
EM.(T/yr)	1.65E-02	8.80E-03	1.65E-02	1.10E-02	1.65E-02	3.30E-02	4.33E-03	1.65E-02	3.85E-02	6.60E-03	3.30E-03	3.30E-03	1.75E-01
NITROGEN OXIDE (NOx)													
E.F.(LB/C.F.)	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.40E-04	1.00E-04	1.00E-04	1.40E-04	1.00E-04	1.00E-04	1.00E-04	
EM.(LB/HR)	6.28E-01	3.35E-01	6.28E-01	4.19E-01	6.28E-01	1.76E+00	1.65E-01	6.28E-01	2.05E+00	2.51E-01	1.26E-01	1.26E-01	7.74E+00
EM.(T/yr)	2.75E+00	1.47E+00	2.75E+00	1.83E+00	2.75E+00	7.70E+00	7.21E-01	2.75E+00	8.98E+00	1.10E+00	5.50E-01	5.50E-01	3.39E+01
CARBON MONOXIDE (CO)													
E.F.(LB/C.F.)	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	9.50E-05	2.10E-05	2.10E-05	9.50E-05	2.10E-05	2.10E-05	2.10E-05	
EM.(LB/HR)	1.32E-01	7.03E-02	1.32E-01	8.79E-02	1.32E-01	4.39E-01	3.46E-02	1.32E-01	5.13E-01	5.27E-02	2.64E-02	2.64E-02	1.78E+00
EM.(T/yr)	5.77E-01	3.08E-01	5.77E-01	3.85E-01	5.77E-01	1.92E+00	1.51E-01	5.77E-01	2.25E+00	2.31E-01	1.16E-01	1.16E-01	7.79E+00
TOTAL ORGANIC COMPOUNDS (TOC)													
E.F.(LB/C.F.)	8.00E-06	8.00E-06	8.00E-06	8.00E-06	8.00E-06	5.80E-06	8.00E-06	8.00E-06	5.80E-06	8.00E-06	8.00E-06	8.00E-06	
EM.(LB/HR)	5.02E-02	2.68E-02	5.02E-02	3.35E-02	5.02E-02	7.28E-02	1.32E-02	5.02E-02	8.49E-02	2.01E-02	1.00E-02	1.00E-02	4.72E-01
EM.(T/yr)	2.20E-01	1.17E-01	2.20E-01	1.47E-01	2.20E-01	3.19E-01	5.77E-02	2.20E-01	3.72E-01	8.80E-02	4.40E-02	4.40E-02	2.07E+00

TABLE 2

HEWLETT PACKARD EMISSION INVENTORY

FUEL BURNING EQUIPMENTS - GENERATORS

GENERATORS	GEN A	GEN B	GEN C	GEN D	GEN E	GEN F	GEN G	GEN H	GEN I	TOTAL
YEAR INSTALLED	1976	1978	1980	1981	1983	1995	1988			
CAPACITY (HP)	1.67E+02	4.65E+02	3.08E+02	4.25E+02	1.48E+02	1.34E+03	6.97E+02	2.77E+02	2.00E+01	3.85E+03
PRIMARY FUEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	
HEAT. VALUE(BTU/GAL)	1.40E+05	1.40E+05	1.40E+05	1.40E+05	1.40E+05	1.40E+05	1.40E+05	1.40E+05	1.40E+05	
MAX. OUTPUT (HP-HR)	1.67E+02	4.65E+02	3.08E+02	4.25E+02	1.48E+02	1.34E+03	6.97E+02	2.77E+02	2.00E+01	3.85E+03
HOURS OPERATION/YR	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02
EMISSIONS FROM DIESEL GENERATOR OPERATIONS										
PART. MATTER (PM)										
E.F.(LB/HP-HR)	2.20E-03	2.20E-03	2.20E-03	2.20E-03	2.20E-03	2.20E-03	2.20E-03	2.20E-03	2.20E-03	1.20E-05
EM. (LB/HR)	3.68E-01	1.02E+00	6.78E-01	9.36E-01	3.26E-01	2.95E+00	1.54E+00	6.10E-01	4.41E-02	8.47E+00
EM.(T/yr) AT 500 HRS	9.20E-02	2.56E-01	1.70E-01	2.34E-01	8.15E-02	7.38E-01	3.84E-01	1.53E-01	1.10E-02	2.12E+00
PTE(T/yr)-8760 HRS	1.61E+00	4.49E+00	2.97E+00	4.10E+00	1.43E+00	1.29E+01	6.72E+00	2.67E+00	1.93E-01	3.71E+01
SULFUR DIOXIDE										
E.F.(LB/HP-HR)	2.05E-03	2.05E-03	2.05E-03	2.05E-03	2.05E-03	2.05E-03	2.05E-03	2.05E-03	2.05E-03	
EM.(LB/HR)	3.43E-01	9.55E-01	6.33E-01	8.73E-01	3.04E-01	2.75E+00	1.43E+00	5.69E-01	4.11E-02	7.90E+00
EM.(T/yr) AT 500 HRS	8.58E-02	2.39E-01	1.58E-01	2.18E-01	7.60E-02	6.88E-01	3.58E-01	9.00E-03	9.00E-03	1.84E+00
PTE (T/yr) AT 8760 HRS	1.50E+00	4.18E+00	2.77E+00	3.82E+00	1.33E+00	1.21E+01	6.27E+00	2.49E+00	1.80E-01	3.46E+01
NITROGEN OXIDE (NO_x)										
E.F.(LB/HP-HR)	3.09E-02	3.09E-02	3.09E-02	3.09E-02	3.09E-02	3.09E-02	3.09E-02	3.09E-02	3.09E-02	
EM.(LB/HR)	5.16E+00	1.44E+01	9.52E+00	1.31E+01	4.57E+00	4.14E+01	2.15E+01	8.56E+00	6.18E-01	1.19E+02
EM.(T/yr) AT 500 HRS	1.29E+00	3.59E+00	2.38E+00	3.28E+00	1.14E+00	1.04E+01	5.38E+00	1.35E-01	1.35E-01	2.77E+01
PTE(T/yr)-8760 HRS	2.26E+01	6.29E+01	4.17E+01	5.75E+01	2.00E+01	1.81E+02	9.43E+01	3.75E+01	2.71E+00	5.21E+02
CARBON MONOXIDE (CO)										
E.F.(LB/HP-HR)	6.67E-03	6.67E-03	6.67E-03	6.67E-03	6.67E-03	6.67E-03	6.67E-03	6.67E-03	6.67E-03	
EM.(LB/HR)	1.11E+00	3.10E+00	2.06E+00	2.84E+00	9.88E-01	8.94E+00	4.65E+00	1.85E+00	1.33E-01	2.57E+01
EM.(T/yr) AT 500 HRS	2.79E-01	7.76E-01	5.14E-01	7.09E-01	2.47E-01	2.24E+00	1.16E+00	4.62E-01	3.34E-02	6.42E+00
PTE(T/yr)-8760 HRS	4.88E+00	1.36E+01	9.00E+00	1.24E+01	4.33E+00	3.92E+01	2.04E+01	8.10E+00	5.85E-01	1.12E+02
TOTAL ORGANIC COMPOUNDS (TOC)										
E.F.(LB/HP-HR)	2.47E-03	2.47E-03	2.47E-03	2.47E-03	2.47E-03	2.47E-03	2.47E-03	2.47E-03	2.47E-03	
EM.(LB/HR)	4.12E-01	1.15E+00	7.59E-01	1.05E+00	3.65E-01	3.30E+00	1.72E+00	6.83E-01	4.93E-02	9.49E+00
EM.(T/yr) AT 500 HRS	1.03E-01	2.87E-01	1.90E-01	2.62E-01	9.12E-02	8.26E-01	4.30E-01	1.71E-01	1.23E-02	2.37E+00
PTE(T/yr)-8760 HRS	1.80E+00	5.02E+00	3.33E+00	4.59E+00	1.60E+00	1.45E+01	7.53E+00	2.99E+00	2.16E-01	4.15E+01

APPENDIX B

February 5, 1996

M E M O R A N D U M

TO: Robert Wilkosz, Chief, Technical Services Bureau (TSB), Permits and Enforcement (P&E)

FROM: Mary Walsh, Air Quality Meteorologist, TSB, P&E MW

THRU: Avijit Ray, Environmental Sciences Manager, TSB, P&E AR

SUBJECT: Modeling/Impact Assessment for Hewlett-Packard (Boise)

1. SUMMARY

On June 12, 1995, DEQ received an application for a Tier II Operating Permit for Hewlett-Packard in Boise, Idaho. The effects of PM_{10} and NO_x were modeled, using a draft of the ISCST3 model, for 17 emission points, consisting of 12 natural gas-fired boilers and 5 emergency generators. Maximum predicted impacts for PM_{10} and NO_x were found to be within the applicable state and federal limits for the proposed emission rates and operational scenarios.

Further modeling was completed, using the newest version of the ISCST3 model, in order to look at the effects of an additional emergency generator, already in operation, at the RFI test facility on the main site. In this analysis, the impact on PM_{10}, CO, and NO_x concentrations was examined. The predicted concentrations for each pollutant were found to be within the applicable air quality standards.

2. DISCUSSION

2.1 Project Description

The facility, which is located at 11311 Chinden Boulevard in Boise, Idaho, is within the Northern Ada County PM_{10} and CO nonattainment area. The facility consists of 12 natural gas-fired boilers, 7 emergency generators, a chemical processing facility, and 5 diesel storage tanks. Hewlett-Packard performed a modeling analysis of the impacts of CO and NO_x for combustion sources at the facility. A previous analysis of the potential impacts upon the ambient air quality of PM_{10} and NO_x from 17 emission points was carried out by DEQ in November of 1995. Additional modeling was completed in order to assess the impact of a sixth generator already in operation at the main site.

2.2 Applicable Air Quality Impact Limits

The area, in Northern Ada County, is considered attainment for NO_x. The NAAQS for NQ is 100 $\mu g/m^3$ for the annual average. Since this facility is already in operation, the impact limits for PM_{10} and CO are the applicable NAAQS standards. The PM_{10} 24-hour standard is 150 $\mu g/m^3$, the PM_{10} annual standard is 50 $\mu g/m^3$, the CO 1-hour standard is 40,000 $\mu g/m^3$, and the 8-hour standard is 10,000 $\mu g/m^3$.

2.3 Background Concentrations

The background concentration for the PM_{10} annual average has been set at 46 $\mu g/m^3$. A background concentration of 50 $\mu g/m^3$ was used for the NO_x analysis. This number has been recommended by the EPA as a very conservative value for the northwest. Since the background NO_x concentration used is a very conservative number, the potential impact of co-contributing sources was not included in the analysis.

2.4 Co-contributing Sources

Co-contributing sources were not considered in this analysis.

2.5 Modeling Impact Assessment

The newest version of the ISCST3 model was used with Boise 1985 surface and upper air meteorology to assess the potential impact of 18 point sources upon ambient concentrations of NO_x, CO, and PM_{10}. These sources consisted of 12 boilers and 6 emergency generators. In the modeling runs, all sources were assumed to operate continuously.

The resulting concentrations were scaled down by the actual hours of operation to give the most realistic representation of the potential impact from each source. There were no time restrictions imposed upon the operation of the natural gas-fired boilers. For the generators, an operating scenario of 500 hrs/year was used. The maximum predicted concentrations for each pollutant were added together along with the appropriate background concentrations and then compared to the applicable NAAQS. It was found that the impact brought about by the sixth emergency generator was very small and did not

result in a significant change of the values reported in the previous analysis.

The following chart compares the maximum predicted pollutant concentrations with the applicable air quality standards.

Pollutant	Predicted Conc. ($\mu g/m^3$)	Ave. Per.	Allowable Conc. ($\mu g/m^3$)	Impact Limit (%)
PM_{10}*	15.7	24-hour	150.0	10.5
PM_{10}	46.6	annual	50.0	93.2
NO_x	55.7	annual	100.0	55.7
CO*	248.1	1-hour	40000.0	0.6
CO*	119.0	8-hour	10000.0	1.2

*NOTE: The PM_{10} 24-hour, and 1-hour and 8-hour CO values are a part of the background concentrations since the facility is an operating source during the nonattainment status of Northern Ada County. The background concentrations for these particular averaging times are above the applicable national standards due to Boise's nonattainment status.

3. MODELING RESULTS

See attachments. Electronic copies saved on the file server as c:\lahey\hpchnd.out

MW\ve hpchnd.tec

Attachments

cc: H. Elshafei
J. Fabile
COF (w/o attachments)

February 5, 1996

MEMORANDUM

TO: Orville D. Green, Assistant Administrator
Permits and Enforcement

FROM: Brian R. Monson, Chief
Operating Permits Bureau

SUBJECT: Issuance of Tier II Operating Permit #001-00086 to
Hewlett-Packard Company (Boise)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits.

PROJECT DESCRIPTION

This project is for an Operating Permit (OP) for Hewlett-Packard Company, located at 11311 Chinden Boulevard in Boise, Idaho. Emission point sources existing at the facility are as follows: twelve (12) natural gas-fired boilers with various capacities and nine (9) diesel emergency generators. Fugitive emission sources found at the facility are as follows: chemical processing facility and paved and unpaved roads emissions.

In the proposed Tier II OP, DEQ did not establish emission limits for any criteria air pollutant that are emitted from the natural gas-fired boilers. The potential to emit for any criteria air pollutant from the boilers when operating at full capacity and based on 8760 hours of operations per year are below 100 tons per year (T/yr). However, particulate grain loading emission limits are established for the boilers and the emergency generators, as per IDAPA 16.01.01.675 (Rules for the Control of Air Pollution in Idaho).

SUMMARY OF EVENTS

On June 12, 1995, DEQ received an application for a Tier II OP. On September 22, 1995, the application was determined complete. On November 10, 1995, a proposed Tier II OP was issued for public comment. A public comment period was then held from November 22, 1995, to December 21, 1995.

On December 8, 1995, DEQ received comments about the content of the proposed OP. These comments were addressed by DEQ in the response package and the technical analysis memo and incorporated into the final OP.

RECOMMENDATIONS

Based on the review of the OP application and on applicable state and federal regulations concerning the permitting of air pollution sources, the Bureau staff recommends that Hewlett-Packard Company, Boise, be issued a Tier II OP. Staff also recommends that the facility be notified in writing of the obligation to pay permit application fees for Tier II permits.

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cc: J. Palmer, SWIRO
OP File Manual
Source File
COF

Response to Comments and Questions Submitted during a Public Comment Period on Hewlett-Packard Company (Boise) Proposed Tier II Operating Permit (OP) for the Entire Facility

COMMENTS AND RESPONSES

Comment #1: In the section addressing the Chemical Processing Facility as a source of emissions from volatile organic compounds (VOC), Section 2,1 states that VOC emissions from our facility are not to exceed 1.07 tons per year (T/yr). Section 3.1 states that the annual chemical usage shall not exceed 1.07 T/yr. In our application, we stated that the absolute potential to emit VOCs was 42.48 T/yr and the absolute potential to emit Hazardous Air Pollutants was 1.07 T/yr. Our facility purchased 121.46 tons of chemicals in 1994, operating at 60% of capacity. At 100% capacity, we would have purchased 202.43 tons of chemicals. The VOC emission estimated were derived from these numbers which were included in Table 7 of our application.

The VOC Limit, Section 2.1, should state that the chemical processing facility shall not exceed 42.48 T/yr, as per applicant's submittal. The Chemical Consumption requirement, Section 3.1, should state that annual chemical usage shall not exceed 202.43 T/yr, as per applicant's submittal.

DEQ Response: **DEQ revised the final Operating Permit to read as follows:**

"1.1 Process Description

HP uses organic liquid materials such as alcohol, fluxes, surfactants, and epoxies in the manufacturing process facility. Fluxes, which are primarily isopropanol, are used in the solder paste reflow process and in hand soldering operations. Isopropanol is also used to surface clean finished product. Epoxies are used in the disk drive assembly process. Surfactants are added to deionized water to aid in parts cleanings.

Some of the water treatment chemicals used in the facility are Dearborn 547, Dearcide 723, Dearcide 737, and polyElpH 955. These chemicals are used for cooling water treatment and as a microbiocide and slimicide treatment. Hydrochloric acid, sulfuric acid, and sodium hydroxide are also used at the facility for water treatment. Hydrochloric acid is processed at the water treatment facility in a closed container. Sodium hydroxide is used to maintain the pH of treated water at a certain level."

The process description was revised to give a clearer understanding of the nature and use of some of the chemicals in the chemical processing facility. In addition, the emission limits were changed to read as follows:

"2.1 VOC LIMITS

Volatile organic compounds (VOCs) emissions from the chemical processing facility shall not exceed 7.99 lb/hr and 35.00 T/yr, as per applicant's submittal.

2.2 HCl Limits

Hydrochloric acid emissions from the chemical processing facility shall not exceed 0.12 lb/hr and 0.51 T/yr as per applicant's submittal."

Rather than specify the overall VOC maximum emissions from the chemical processing facility on the basis of the total projected chemical requirements, as per applicant's submittal, DEQ developed VOC and HCl emission limits. The rationale behind this is as follows:

A. HCl is technically not a VOC. As per definition, VOC includes any compound of carbon (excluding CO, CO_2, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reacitions). HCl is not a compound of carbon and is therefore excluded from VOC emission limits.

B. HCl is listed as a hazardous air pollutant (HAP) in section 112(b) of the Clean Air Act.

Emissions from other chemical compounds (i.e., 1,1,1,2 tetrafluoroethane) which are listed as non-VOCs as per above definition are also deleted from the original VOC limit as per applicants submittal.

Finally, the operating requirements were modified to more accuractely reflect chemical usage in the facility.

Because some of the chemicals used in the chemical processing facility are not sources of VOC emissions, chemicals which are not regulated as VOCs are deleted from the annual chemical usage limit. Furthermore, VOC sources are separated from the Hydrochloric Acid emission source.

Due to the toxic nature of the HCl vapors and its volatile nature (i.e., 100% volatile per MSDS), an operating provision (Section 3.2) is added to the final operating permit to ensure that the exposure to HCl fumes is kept at the lowest possible levels.

Comment #2: In the section addressing the Fuel Burning Emergency Diesel Generators, there were five (5) emergency generators originally submitted as emission sources in our permit application. As a result of discussions with the permitting engineer at DEQ, two (2) more emergency generators were added to the permit application even though they are not located on Hewlett-Packard Company's main site, nor are they located on contiguous property. In discussions with HP maintenance personnel regarding the inclusion of these two generators, we realized that there is also an emergency generator located at a leased facility, not contiguous to the main site, that was also omitted from our permit application. The identifying information and emissions calculations for the omitted generator, Generator H, are attached. These three (3) emergency generators were not included in our permit application because they were not located at the main site or on contiguous property.

During our discussions of emergency generators that were excluded due to their off-site locations, we realized that we had also omitted an emergency generator that serves our Radio Frequency Interference (RFI) test facility that is located on our main site. The identifying information and emissions calculations for this generator, generator I, are also attached.

Hewlett-Packard Company submitted a permit application to DEQ on June 12, 1995. At that time, we proposed a Tier II synthetic minor permit application to enforceably limit our potential to emit from fuel burning equipment. On September 6, 1995, EPA issued a guidance addressing potential to emit for emergency generators. The guidance states, "EPA does not recommend that use of 8760 hours per year for calculating the PTE for emergency generators. Instead, EPA recommends that the potential to emit be determined based upon an estimate of the maximum amount of hours the generator could operate, taking into account (1) the number of hours power would be expected to be unavailable, and (2) the number of hours for maintenance activities. The EPA believes that 500 hours is an appropriate default assumption for estimating the number of hours that an emergency generator could be expected to operate under worst-case conditions."

Hewlett-Packard is a natural minor source for all pollutants except NO_x emissions from the fuel burning equipment. If our emergency generators are limited to 500 hours of operation by the nature of their being "emergency" only, HP would now be a natural minor source for all pollutants and permitting would not be necessary. We recognize, however, that the permitting program is evolving and HP would like to participate in this program. Much effort has been put into preparing our application and the proposed permit, and we would like to continue with the permitting process.

DEQ Response: **DEQ revised the final OP and added the two emergency generators, which were not included in the original Tier II OP application for the facility.**

IDAHO DEPARTMENT
OF HEALTH AND WELFARE

DIVISION OF
ENVIRONMENTAL QUALITY

1410 North Hilton, Boise, ID 83706-1255, (208) 334-0502 Philip E. Batt, Governor

February 5, 1996

MEMORANDUM

TO: Dave Sande, Accountant Supervisor
Support Services

FROM: Harbi A. Elshafei, Air Quality Engineer
Operating Permits Bureau (OPB)
Permits and Enforcement

SUBJECT: Permit Application Fees for Tier II Permit

The following facility has been reviewed for compliance with IDAPA 16.01.01.470 "Permit Application Fees for Tier II Permits":

Hewlett-Packard Company

Hewlett-Packard Company, in Boise, Idaho, applied for a Tier II Operating Permit for the sources that exist at the facility. DEQ has released the facility's proposed Tier II Operating Permit. According to IDAPA 16.01.01.470, the facility is subject to permit application fees for Tier II Permits of:

Five Hundred Dollars and No Cents ($500.00)

The contact and mailing address for the above facility is:

PERSON CONTACT: Linda Bowen
COMPANY ADDRESS: 11311 Chinden Boulevard
Boise, Idaho 83714

HAE: jrj-c\...\hewlettp.fee

cc: S. Richards, DEQ
J. Palmer, SWIRO
Source File
COF